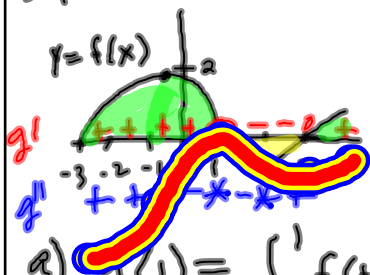


54



$$g(x) = \int_1^x f(t) dt$$

$$g'(x) = f(x)$$

$$g''(x) = f'(x)$$

g) find range of $g(x)$

endpts

$$g(-3) = \int_1^{-3} f(t) dt = -\int_{-3}^1 f(t) dt$$

$$g(4) = \int_1^4 f(t) dt = -\frac{1}{2} \pi \cdot 2^2 = -\pi$$

$$= -\frac{1}{2} \pi \cdot 2^2 = -\pi$$

$$\text{range} = [-2\pi, 0]$$

$$a) g(1) = \int_1^1 f(t) dt = 0$$

$$b) g(3) = \int_1^3 f(t) dt = -\frac{1}{2} \cdot 2 \cdot 1 = -1$$

$$c) g(-1) = \int_1^{-1} f(t) dt = -\int_{-1}^1 f(t) dt = -\frac{1}{4} \pi \cdot 2^2 = -\pi$$

$$d) \text{rel max of } g(x): \text{max at } x=1, y=0$$

$$\text{rel min at } x=3, y=-1$$

$$e) x=-1, y=-\pi \quad g'(-1) = f(-1) = 2 \quad y = 2/(x+1) - \pi$$

$$f) \text{infl. pt of } g: \text{where } g' \text{ changes sign } x=-1, x=2$$

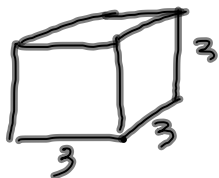
Dec 2-12:56 PM

56.

$$V = SA = \frac{20}{2} (146 + 2 \cdot 122 + 2 \cdot 76 + \dots + 13) \cdot 5$$

$$\frac{ft^3}{yd^3}$$

27



$$\approx 1500 yd^3$$

$$3 \text{ ft} = 1 \text{ yard}$$

$$27 \text{ ft}^3 = 1 \text{ yd}^3$$

Dec 2-1:29 PM